AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A ~~method,~~ method comprising:

conducting, by a learning component of a server of a network, different trials of one or more options in different states of a network communication between a client and the server via a protocol of the network communication, wherein each trial is defined by a combination of the one or more options occurring at a particular state of the network communication;

receiving, by the learning component, performance feedback for the different trials as rewards; and

utilizing, by the learning component, the different trials and their associated resulting rewards to improve a decision-making policy made by an option negotiation component of the server for negotiation of one or more options, wherein the one or more options defining specifications of the network communication between the server and the client, wherein the decision-making policy is used to choose one or more actions to maximize file transfer performance based on the one or more options as negotiated by the option negotiation component, wherein the option negotiation component to serve as an intelligent agent to interact with multiple environments and provide a trial option for each of the multiple environments and receive the rewards as the performance feedback.

2. (Previously Presented) The method of claim 1, further comprising uploading, based on the different trials and rewards, an optimum set of options associated with an observed configuration of the server, the client, and a network environment enabling the network communication between the server and the client to a centralized place.

3. (Original) The method of claim 2, wherein one or more other servers download from the centralized place the optimum set of options to utilize as an initial point to start a new learning process in the environment of the one or more other servers.

4. (Previously Presented) The method of claim 1, wherein the option negotiation component applies a reinforcement learning algorithm to improve the decision-making policy for negotiation of the one or more options.

5. (Currently Amended) The method of claim 4, wherein the reinforcement algorithm utilizes a Q-learning method, wherein the Q-learning algorithm iteratively calculates value functions of an optimal policy for option selection by the option negotiation component.

6. (Cancelled)

7. (Previously Presented) The method of claim 1, wherein the server is a trivial file transfer protocol (TFTP) server.

8. (Currently Amended) An ~~apparatus,~~ apparatus comprising:

an option negotiation component to select one or more options for a communication protocol, receive rewards as performance feedback associated with the selection of the one or more options, and adjust the selection of the one or more options based on the rewards; and

a file transfer component to transfer a file utilizing an optimum set of the one or more options selected by the option negotiation component based on the rewards and adjusted selections to improve a decision-making policy made by the option negotiation component for negotiation of the one or more options, wherein the decision-making policy is used to choose one or more actions to maximize performance of the transfer of the file based on the

one or more options as negotiated by the option negotiation component, wherein the option negotiation component to serve as an intelligent agent to interact with multiple environments and provide a trial option for each of the multiple environments and receive the rewards as the performance feedback.

9. (Original) The apparatus of claim 8 wherein the option negotiation component applies a reinforcement learning algorithm that determines the one or more options to select, the performance feedback for the selection, and the adjustment of the selection.

10. (Currently Amended) The apparatus of claim 9, wherein the reinforcement algorithm utilizes a Q-learning algorithm, wherein the Q-learning algorithm iteratively calculates value functions of an optimal policy for option selection by the option negotiation component.

11. (Cancelled)

12. (Original) The apparatus of claim 8, wherein the option negotiation component and the file transfer component are components of a trivial file transfer protocol (TFTP) server.

13. (Original) The apparatus of claim 8, wherein the option selection component further to upload the optimum set of options and associated configurations of an environment associated with the optimum set of options to a centralized place.

14. (Cancelled)

15. (Currently Amended) A ~~system,~~ system comprising:

a network environment; and

a server communicatively coupled to the network environment via a network interface and including:

an option negotiation component to select one or more options for a communication protocol, receive rewards as performance feedback associated with the selection of the one or more options, and adjust the selection of the one or more options based on the rewards; and

a file transfer component to transfer a file utilizing an optimum set of the one or more options selected by the option negotiation component based on the rewards and adjusted selections to improve a decision-making policy made by the option negotiation component for negotiation of the one or more options, wherein the decision-making policy is used to choose one or more actions to maximize performance of the transfer of the file based on the one or more options as negotiated by the option negotiation component, wherein the option negotiation component to to serve as an intelligent agent interact with multiple environments and provide a trial option for each of the multiple environments and receive the rewards as the performance feedback.

16. (Original) The system of claim 15, wherein the option negotiation component applies a reinforcement learning algorithm that determines the one or more options to select, the performance feedback for the selection, and the adjustment of the selection.

17. (Currently Amended) The system of claim 16, wherein the reinforcement algorithm utilizes a Q-learning algorithm, wherein the Q-learning algorithm iteratively calculates value functions of an optimal policy for option selection by the option negotiation component.

18. (Cancelled)

19. (Original) The system of claim 15, wherein the server is a trivial file transfer protocol (TFTP) server.

20. (Original) The system of claim 15, wherein the option negotiation component uploads an optimum set of options based on the different trials and rewards and observed configurations of the environment associated with the optimum set of options to a centralized place.

21. (New) The method of claim 1, wherein the option negotiation component is placed in a particular state at a particular time, wherein the particular state is used to describe a plurality of status of a file transfer system, the plurality of status relating to file transfer requests and sessions, the option negotiation component to use the plurality of status to provide the one or more options.

22. (New) The apparatus of claim 8, wherein the option negotiation component is placed in a particular state at a particular time, wherein the particular state is used to describe a plurality of status of a file transfer system, the plurality of status relating to file transfer requests and sessions, the option negotiation component to use the plurality of status to provide the one or more options.

23. (New) The system of claim 15, wherein the option negotiation component is placed in a particular state at a particular time, wherein the particular state is used to describe a plurality of status of a file transfer system, the plurality of status relating to file transfer

requests and sessions, the option negotiation component to use the plurality of status to provide the one or more options.